

**Serial No. 10/525,026
Atty. Doc. No. 2002P12057WOUS**

REMARKS

Applicants appreciate the thorough examination of the subject application. In this paper certain claims have been amended as set forth above. Applicants respectfully request allowance of the present application in view of the amendments and remarks presented herein.

The objection to claim 26 has been overcome by amending the claim to depend from claim 16 as per the Examiner's suggestion.

Claims 16-18 have been rejected under Section 102(b) as anticipated by Valleur (5,028,100). Claims 19-21, 23 and 26-31 have been rejected under Section 103(a) as unpatentable over Valleur in view of Beeck (6,534,975). Claims 22, 24 and 25 stand rejected as unpatentable over Valleur in view of Goldfine (5,793,206).

To further define the invention over the prior art, the Applicants have revised claim 16 as set forth above. These amendments are supported by paragraphs [36], [39] and [40] of the application as filed. No new matter has been added by these amendments.

Valleur discloses a technique for characterizing a material by determining an impedance-based fault response signature (the signature comprising a plurality of fault response vectors) for a material under test and comparing the signature with a response from a fault-free material. See Valleur lines 55-64 of column 6. See also the paragraph beginning at line 50 of column 7 where Valleur discloses that it is necessary to use a reference before fault identification can be performed. Generally, the characterization is performed at a plurality of frequencies, each frequency generating one fault response vector.

Valleur further uses the fault response angle (the angle between the fault response vector and the impedance of an unloaded measurement probe) to determine the depth to the fault, according to the Formula 4 set forth below line 55 of column 9. Clearly the Applicants invention as set forth in amended claim 16 is patentably distinct from Valleur as the Applicants do not require use of such a complex formula to determine fault depth. Instead, the Applicants determine a first measurement variable at a first frequency and a second measurement variable at a second frequency, from which the depth to the degraded region is determined according to the difference between the first and the second measurement variables.

Further, as Valleur explains in column 10 beginning at line 7, "This relationship [Valleur's formula 4] can accurately determine the depth of embedded faults . . . when the

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resistivity of the target material is known. Where these parameters [resistivity] are not accurately known, relative measures of the fault depth and material thickness are achieved by using educated guesses." That is, Valneau inserts the known resistivity value of the target material into his formula 4 to calculate the depth to the fault. Material conductivity is the reciprocal of resistivity. Since the Applicants claim using a difference between two measurement variables (one of which can be conductivity) at two different frequencies to determine the fault depth, amended claim 16 is patentably distinct from Valneau.

Each of the dependent claims 17-29 and 31, depending from claim 16, further distinguishes the invention as claimed as each defines a novel and non-obvious combination of additional elements. It is therefore respectfully submitted that these dependent claims are allowable over the cited art. Certain of these claims have been amended as set forth above for consistent term usage with the independent claim 16 from which they depend.

Claim 30 has been cancelled, the Applicant reserving the right to prosecute this claim or a similar claim in a continuing application. Cancellation of this claim is not to be construed as an admission as to the validity of the rejection or the applicability of the cited art.

The Applicants further suggest that the combination of Valneau and Beeck does not satisfy the requirements for combining references. Valneau discloses non-destructive testing employing eddy current techniques, but the Beeck's reference to carbides is specifically associated with thermography type non-destructive testing. Thus the combination is suspect.

Conclusion

The Applicants have responded to all of the claim rejections and objections in the Office Action and it is believed that the claims 16-29 and 31 remaining in the application are now in condition for allowance. It is respectfully requested that the Examiner reconsider these rejections and issue a Notice of Allowance for all pending claims

If a telephone conference will assist in clarifying or expediting this Amendment or the claim changes made herein, the Examiner is invited to contact the undersigned at the telephone number below.

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The commissioner is hereby authorized to charge any appropriate fees due in connection with this paper, including the fees specified in 37 C.F.R. §§ 1.16 (c), 1.17(a)(1) and 1.20(d), or credit any overpayments to Deposit Account No. 19-2179.

Respectfully submitted,

Dated: 7/27/07

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